

PATENTS
Attorney Docket No. OPY-008.01
WZ22

IN THE CLAIMS:

1 1-5. (Canceled)

1 6. (Currently Amended): The evaporator and condenser unit of claim ~~5~~ 15 wherein the section
2 of the tube extends substantially along the axis of rotation and the means for discharging liquid is
3 configured such that liquid enters the evaporating chambers which are open at their inner edges.

1 7. (Canceled)

1 8. (Currently Amended): The evaporator and condenser unit of claim 11 further comprising a
2 catch basin disposed in spaced-apart relation about the sealed outer edge of at least one
3 evaporating chamber, the catch basin extending radially inward relative to the axis of rotation
4 a selected distance, and being open in the direction of the axis of rotation.

1 9. (Original): The evaporator and condenser unit of claim 8 wherein a catch basin is
2 disposed about the sealed outer edge of each evaporating chamber.

1 10. (Currently Amended): An evaporator and condenser unit for use in distilling a liquid, the
2 evaporator and condenser unit ~~The evaporator and condenser unit of claim 4 further~~
3 comprising:

4 a housing having an inlet, an outlet, and a lower portion defining a sump for
5 containing the liquid to be distilled;

6 a heat exchanger plate disposed within the housing and configured for rotation about
7 an axis, the heat exchanger plate having a plurality of folds and two opposing edges that are
8 joined together so as to give the folded plate a generally circular shape, the folds defining a
9 plurality of spaced-apart panels having corresponding surfaces that define alternating
10 evaporating and condensing chambers between opposing panel surfaces;

11 an upper end plate and a lower end plate disposed within the housing substantially
12 perpendicular to the axis of rotation;

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13 a liquid-pick-up mechanism configured to draw liquid from the sump and deliver it to
14 the inner edges of the evaporating chambers;
15 a sleeve enclosing the folded heat exchanger plate at least at its outer edges, the sleeve
16 defining a condensate collection space proximate to the folded, heat exchanger plate
17 opposite the sump, and
18 at least one stationary scoop tube extending through the housing and into the
19 condensate collection space, the at least one stationary scoop tube having an opening in the
20 condensate collection space, wherein:
21 the folded heat exchanger plate is mounted between the upper and lower end plates
22 so as to seal the evaporating chambers from the condensing chambers,
23 the evaporating and condensing chambers include inner and outer edges relative to the
24 axis of rotation,
25 the evaporating chambers are closed at their outer edges by corresponding folds in the
26 heat exchanger plate, are open at their inner edges, and are in fluid communication with the
27 outlet so as to provide vapor thereto,
28 the condensing chambers are open at their outer edges, are closed at their inner
29 edges by corresponding folds in the heat exchanger plate, and are in fluid communication with
30 the inlet so as to receive vapor therefrom;
31 the upper end plate has one or more ports disposed proximate to an outer diameter edge
32 of the upper end plate, the one or more ports providing fluid communication between the
33 condensing chambers and the condensate collection space, and
34 the at least one stationary scoop tube is configured to remove condensate that
35 collects in the condensate collection space.

1 11. (Currently Amended): An evaporator and condenser unit for use in distilling a liquid, the
2 evaporator and condenser unit ~~The evaporator and condenser unit of claim 4 further~~
3 comprising:
4 a housing having an inlet, an outlet, and a lower portion defining a sump for
5 containing the liquid to be distilled;

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6 a heat exchanger plate disposed within the housing and configured for rotation about
7 an axis, the heat exchanger plate having a plurality of folds and two opposing edges that are
8 joined together so as to give the folded plate a generally circular shape, the folds defining a
9 plurality of spaced-apart panels having corresponding surfaces that define alternating
10 evaporating and condensing chambers between opposing panel surfaces;

11 an upper end plate and a lower end plate disposed within the housing substantially
12 perpendicular to the axis of rotation;

13 a liquid pick-up mechanism configured to draw liquid from the sump and deliver it to
14 the inner edges of the evaporating chambers;

15 a sleeve enclosing the folded heat exchanger plate at least at its outer edges, the
16 sleeve defining a side wall facing the axis of rotation, the sleeve configured such that the side
17 wall traps condensate generated within the condensing chambers; and

18 a seal ring extending around the outer end of the folded, heat exchanger plate between
19 the lower end plate and the sleeve, the seal ring configured to permit fluid communication
20 between the evaporating chambers and the sump, but blocking fluid communication between
21 the condensing chambers and the sump, wherein:

22 the folded heat exchanger plate is mounted between the upper and lower end plates
23 so as to seal the evaporating chambers from the condensing chambers,

24 the evaporating and condensing chambers include inner and outer edges relative to the
25 axis of rotation.

26 the evaporating chambers are closed at their outer edges by corresponding folds in the
27 heat exchanger plate, are open at their inner edges, and are in fluid communication with the
28 outlet so as to provide vapor thereto, and

29 the condensing chambers are open at their outer edges, are closed at their inner
30 edges by corresponding folds in the heat exchanger plate, and are in fluid communication with
31 the inlet so as to receive vapor therefrom.

1 12. (Currently Amended): The evaporator and condenser unit of claim 10 wherein the
2 folds of the heat exchanger plate are substantially co-planar with the axis of rotation.

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1 13. (Canceled):

1 14. (Currently Amended): An evaporator and condenser unit for use in distilling a liquid, the
2 evaporator and condenser unit comprising:
3 a housing having an inlet, an outlet, and ~~The evaporator and condenser unit of~~
4 ~~claim 13 wherein the housing includes a lower portion defining a sump for~~ containing the liquid
5 to be distilled;
6 a heat exchanger plate disposed within the housing and configured for rotation
7 about an axis, the heat exchanger plate having a plurality of folds and two opposing edges
8 that are joined together so as to give the folded plate a generally circular shape, the folds
9 defining a plurality of spaced-apart panels having corresponding surfaces that define
10 alternating evaporating and condensing chambers between opposing panel surfaces,
11 an upper end plate and a lower end plate disposed within the housing
12 substantially perpendicular to the axis of rotation; and
13 the unit further comprising a liquid pick-up mechanism configured to draw liquid
14 from the sump and deliver it to the inner edges of the evaporating chambers, wherein:
15 the folded heat exchanger plate is mounted between the upper and lower end plates
16 so as to seal the evaporating chambers from the condensing chambers,
17 the evaporating and condensing chambers include inner and outer edges relative to the
18 axis of rotation,
19 the evaporating chambers are closed at their outer edges by corresponding folds in the
20 heat exchanger plate, are open at their inner edges, and are in fluid communication with the
21 outlet so as to provide vapor thereto, and
22 the condensing chambers are open at their outer edges, are closed at their inner
23 edges by corresponding folds in the heat exchanger plate, and are in fluid communication with
24 the inlet so as to receive vapor therefrom.

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1 15. (Currently Amended): An evaporator and condenser unit for use in distilling a liquid, the
2 evaporator and condenser unit comprising:
3 a housing having an inlet, an outlet, and ~~The evaporator and condenser unit of~~
4 claim 13 wherein the housing includes a lower portion defining a sump for containing the liquid
5 to be distilled;
6 a heat exchanger plate disposed within the housing and configured for rotation
7 about an axis, the heat exchanger plate having a plurality of folds and two opposing edges
8 that are joined together so as to give the folded plate a generally circular shape, the folds
9 defining a plurality of spaced-apart panels having corresponding surfaces that define
10 alternating evaporating and condensing chambers between opposing panel surfaces;
11 an upper end plate and a lower end plate disposed within the housing
12 substantially perpendicular to the axis of rotation; ~~the unit further comprising:~~
13 a rotating element extending at least partially within the sump and including a
14 wall configured to pick-up liquid from the sump; and
15 a first stationary scoop tube having an open end disposed near the wall of the rotating
16 element and a section disposed proximate to the inner edges of the folded heat exchanger plate,
17 the section having means for discharging liquid from the sump, wherein:
18 the folded heat exchanger plate is mounted between the upper and lower end plates
19 so as to seal the evaporating chambers from the condensing chambers.
20 the evaporating and condensing chambers include inner and outer edges relative to the
21 axis of rotation,
22 the evaporating chambers are closed at their outer edges by corresponding folds in the
23 heat exchanger plate, are open at their inner edges, and are in fluid communication with the
24 outlet so as to provide vapor thereto, and
25 the condensing chambers are open at their outer edges, are closed at their inner
26 edges by corresponding folds in the heat exchanger plate, and are in fluid communication with
27 the inlet so as to receive vapor therefrom.

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1 16-20. (Canceled).

1 21. (New) The evaporator and condenser unit of claim 11 wherein the folds of the heat
2 exchanger plate are substantially co-planar with the axis of rotation.

1 22. (New) The evaporator and condenser unit of claim 14 wherein the folds of the heat
2 exchanger plate are substantially co-planar with the axis of rotation.

1 23. (New) The evaporator and condenser unit of claim 15 wherein the folds of the heat
2 exchanger plate are substantially co-planar with the axis of rotation.